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EXAMINER	
MILIA, MARK R	

ART UNIT	PAPER NUMBER
2622	

DATE MAILED: 07/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/783,011	NAGUMO ET AL.	
	Examiner	Art Unit	
	Mark R. Milia	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment was received on 2/18/05, and has been entered and made of record. Currently, claims 1-10 and 12-19 are pending.

Specification

2. Applicant's amendment to the specification to revise page 42 to include reference to step (S24) has overcome the objection to the specification cited in the previous Office Action. Therefore, the objection has been withdrawn.

Response to Arguments

3. Applicant's arguments, see pages 9-11, filed on 2/18/05, with respect to the rejection(s)of claim(s) 1 and 8 under 35 U.S.C. 102(b) have been fully considered and are persuasive. The Examiner agrees that Katakura does not disclose a memory that stores correction data but does disclose memory for storing some sort of data. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the current amendments to the claims and

a different interpretation of previously cited references. Further, newly added claims 17-19 will be addressed in the following rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 5, 6, 8, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura in view of Fukui.

Regarding claim 1, Katakura discloses an image recording apparatus comprising a plurality of groups of driven elements which are driven for printing on a medium (see column 2 lines 57-65), a driving section connected to the driven elements (see column 2 line 57-column 3 line 2), a memory for storing a plurality of data (see column 2 lines 29-50 and Fig. 1), a print controller for receiving an input data signal and controlling the driving section and the memory, the print controller generating a clock signal (see column 2 lines 29-50, column 3 lines 47-50, and Fig. 1), a connection arrangement for connecting the print controller to the driving section, the connection arrangement including a plurality of strobe signal lines that connect the print controller to the memory in addition to the driving section (see Figs. 2, 3, and 7, column 3 lines 15-23 and 57-59, and column 4 lines 1-7), wherein the print controller generates print data from the input

data and transfers the print data to the driving section via the connection arrangement in synchronism with the clock signal (see column 2 lines 47-50 and column 3 lines 29-31 and 47-50), wherein the print controller generates strobe signals that are conveyed to the driving section via the strobe signal lines and that cause the driving section to drive the groups of driven elements in accordance with the print data (see column 3 lines 15-23, 47-50, and 57-59), and wherein the print controller reads data out of the memory via the strobe signal lines (see Figs. 2, 3, and 7, column 3 lines 15-23 and 57-59, and column 4 lines 1-7).

Katakura does not disclose expressly a memory for storing a plurality of correction values for the driven elements, each correction value corresponding to a respective one of the driven elements and wherein the print controller reads the correction values out of the memory and conveys the correction values to the driving section via the connection arrangement.

Fukui discloses a memory for storing a plurality of correction values for the driven elements, each correction value corresponding to a respective one of the driven elements (see column 6 lines 21-27), a print controller for receiving an input data signal and controlling the driving section and the memory, the print controller generating a clock signal (see Fig. 2, column 6 lines 21-27 and 52-58, and column 7 lines 31-59), a connection arrangement for connecting the print controller to the driving section and to the memory (see Fig. 2 and column 6 lines 21-27 and 52-58), wherein the print controller generates print data from the input data and transfers the print data to the driving section via the connection arrangement (see column 5 lines 27-35, column 6

lines 21-27 and 52-58, and column 7 lines 24-59), wherein the print controller generates signals that are conveyed to the driving section and that cause the driving section to drive the groups of driven elements in accordance with the print data (see column 5 lines 27-35, column 6 lines 21-27 and 52-58, and column 7 lines 24-59), and wherein the print controller reads the correction values out of the memory and conveys the correction values to the driving section via the connection arrangement (see column 5 lines 27-35, column 6 lines 21-27 and 52-58, and column 7 lines 24-59).

Regarding claim 8, Katakura discloses an image recording apparatus comprising a plurality of groups of driven elements which are driven for printing on a medium (see column 2 lines 57-65), a driving section connected to the driven elements, the driving section including a plurality of driving circuits which drive said groups of driven elements (see column 2 line 57-column 3 line 2), a first memory for storing a plurality of data (see column 2 lines 29-50 and Fig. 1), a print controller for receiving an input data signal and controlling the driving section and the memory, the print controller generating a clock signal (see column 2 lines 29-50, column 3 lines 47-50, and Fig. 1), a connection arrangement for connecting the print controller to the driving section, the connection arrangement including a plurality of strobe signal lines that connect the print controller to the memory in addition to the driving section (see Figs. 2, 3, and 7, column 3 lines 15-23 and 57-59, and column 4 lines 1-7), wherein the print controller generates print data from the input data and transfers the print data to the driving section via the connection arrangement in synchronism with the clock signal (see column 2 lines 47-50 and column 3 lines 29-31 and 47-50), and wherein the print controller comprises a CPU which

generates strobe signals that are conveyed to the driving section via the strobe signal lines to cause the driving section to drive the groups of driven elements in accordance with the print data (see column 3 lines 15-23, 47-50, and 57-59).

Katakura does not disclose expressly a memory for storing a plurality of correction values for the driven elements, each correction value corresponding to a respective one of the driven elements and wherein said print controller further comprises an auxiliary second memory, and reads the correction values out of the first memory for temporary storage of the correction values in the second memory and thereafter conveys the correction values to the driving section via the connection arrangement prior to a printing operation.

Fukui discloses a memory for storing a plurality of correction values for the driven elements, each correction value corresponding to a respective one of the driven elements (see column 6 lines 21-27), a print controller for receiving an input data signal and controlling the driving section and the memory, the print controller generating a clock signal (see Fig. 2, column 6 lines 21-27 and 52-58, and column 7 lines 31-59), a connection arrangement for connecting the print controller to the driving section and to the memory (see Fig. 2 and column 6 lines 21-27 and 52-58), wherein the print controller generates print data from the input data and transfers the print data to the driving section via the connection arrangement (see column 5 lines 27-35, column 6 lines 21-27 and 52-58, and column 7 lines 24-59), wherein the print controller generates signals that are conveyed to the driving section and that cause the driving section to drive the groups of driven elements in accordance with the print data (see column 5

lines 27-35, column 6 lines 21-27 and 52-58, and column 7 lines 24-59), and wherein said print controller further comprises an auxiliary second memory, and reads the correction values out of the first memory for temporary storage of the correction values in the second memory and thereafter conveys the correction values to the driving section via the connection arrangement prior to a printing operation (see Figs. 3 and 4 and column 7 lines 41-49, reference shows that correction data is sent to a correction data part (253) that is used to correct the input data to properly control the laser diode driver).

Katakura & Fukui are combinable because they are from the same field of endeavor, electrophotographic printing process.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the gamma correction data aspect of Fukui with the print system of Katakura.

The suggestion/motivation for doing so would have been to provide a way, by using gamma correction data, to print a document of constant gradation by controlling the density of an image (see column 2 lines 21-26 of Fukui).

Therefore, it would have been obvious to combine Fukui with Katakura to obtain the invention as specified in claims 1 and 8.

Regarding claim 2, Katakura and Fukui disclose the apparatus discussed in claim 1, and Katakura further discloses a driving section provided in a head (see column 2 line 57-column 3 line 14) and Fukui further discloses wherein said memory is provided

in a head (see column 5 lines 27-34, column 6 lines 21-27 and 52-58 and Fig. 2), and said print controller reads out the correction values from said memory provided in said head and transmits the correction values to the driving section provided in the head prior to a printing operation (see column 7 lines 24-59).

Regarding claim 5, Katakura and Fukui disclose the apparatus discussed in claim 1, and Katakura further discloses wherein said driven elements are LED elements for emitting recording light (see column 2 lines 57-65).

Regarding claim 6, Katakura and Fukui disclose the apparatus discussed in claim 1, and Katakura further discloses wherein said print controller is constructed so as to be connectable to an external upstream apparatus, said upstream apparatus supplying said input data to said print controller (see Fig. 1 and column 2 lines 35-37 and 47-50) and when a read command for reading of the data is received from said upper apparatus, said print controller reads out the data from said memory and transmits it to said upstream apparatus (see column 2 lines 47-50 and Fig. 1, reference shows and interface circuit that connects to an external device such as a computer and it is well known that an interface allows data to flow in and out therefore the invention is analogous to the claimed element). Fukui further discloses wherein data is correction data (see column 5 lines 27-34 and column 6 lines 21-27).

Regarding claim 17, Katakura and Fukui disclose the apparatus discussed in claim 1, and Katakura further discloses wherein the print controller conveys the correction values to the driving section in synchronism with the clock signal (see column 3 lines 26-31 and 47-50).

Regarding claim 18, Katakura and Fukui disclose the apparatus discussed in claim 1, and Katakura further discloses wherein the driven elements are light-emitting elements (see column 2 lines 57-65) and Fukui further discloses wherein the correction values are used to compensate for variations in light emission of light-emitting elements (see column 6 lines 21-27 and 52-58 and column 7 lines 49-59).

Regarding claim 19, Katakura and Fukui disclose the apparatus discussed in claim 1, and Fukui further discloses wherein the print controller comprises a RAM that temporarily stores the correction values that are read out of the memory before they are conveyed to the driving section (see Figs. 3 and 4 and column 7 lines 41-49, reference shows that correction data is sent to a correction data part (253) that is used to correct the input data to properly control the laser diode driver).

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura and Fukui as applied to claim 1 above, and further in view Nakazato.

Katakura does not disclose expressly (*claim 3*) wherein said correction values stored in said memory are compressed correction values, said print controller comprises a decompressing circuit for decompressing the compressed correction values stored in said memory, and said print controller reads out the compressed correction data from said memory and decompresses it prior to a printing operation and transmits the decompressed correction data to said driving section, (*claim 4*) wherein said print controller comprises a compressing circuit for compressing correction values to be

stored into said memory and, the correction values are compressed by said compressing circuit and written into said memory.

Fukui discloses correction values being stored in memory (see column 6 lines 21-27 and 52-58) and a print controller reads out the correction values from said memory and transmits the decompressed correction values to said driving section (see column 7 lines 24-59).

Fukui does not disclose expressly (*claim 3*) wherein said correction values stored in said memory are compressed correction values, said print controller comprises a decompressing circuit for decompressing the compressed correction values stored in said memory, and said print controller reads out the compressed correction values from said memory and decompresses it prior to the printing operation and transmits the decompressed correction values to said driving section, (*claim 4*) wherein said print controller comprises a compressing circuit for compressing correction values to be stored into said memory and, the correction values are compressed by said compressing circuit and written into said memory.

Nakazato discloses (*claim 3*) compressing data to be stored in memory (see column 4 lines 62-67), decompressing the compressed data stored in memory (see column 5 lines 1-9, reference teaches an expansion process of compressed data which is the same as decompressing the compressed data), and decompressed data is transmitted for actual printing (see column 5 lines 10-13), (*claim 4*) wherein data is compressed and stored in memory (see column 4 lines 61-67).

Katakura, Fukui, & Nakazato are combinable because they are from the same field of endeavor, printing devices using stored data.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the compression/expansion method of Nakazato with the print system of Katakura and Fukui.

The suggestion/motivation for doing so would have been to provide compression of data to increase memory capacity and efficiency (see column 4 lines 66-67 of Nakazato).

Therefore, it would have been obvious to combine Nakazato with Katakura and Fukui to obtain the invention as specified in claims 3 and 4.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura and Fukui as applied to claim 8 above, and further in Nakazato.

Katakura discloses data that is stored in said memory, data read out from said memory and supplied to said driving section through said memory and said print data lines (see column 2 line 29-column 3 line 23).

Fukui discloses correction data being stored in a first memory (see column 6 lines 21-27) wherein the print controller comprises a second memory that stores the correction values that are read out of the memory before they are conveyed to the driving section (see Figs. 3 and 4 and column 7 lines 41-49, reference shows that correction data is sent to a correction data part (253) that is used to correct the input data to properly control the laser diode driver).

Katakura and Fukui do not disclose expressly wherein the print controller further comprises a compressing circuit for compressing said correction values which are stored in said first memory, and wherein said CPU decompresses said compressed correction values read out from said first memory and supplies the decompressed values to said driving section through said second memory and connection arrangement.

Nakazato discloses compressing and decompressing correction data (see column 4 line 59-column 5 line 9).

Katakura, Fukui, & Nakazato are combinable because they are from the same field of endeavor, printing devices using stored data.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the compression/expansion method of Nakazato with the print system of Katakura and Fukui.

The suggestion/motivation for doing so would have been to provide compression of data to increase memory capacity and efficiency (see column 4 lines 66-67 of Nakazato).

Therefore, it would have been obvious to combine Nakazato with Katakura and Fukui to obtain the invention as specified in claim 13.

Claims 9, 10, 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura and Fukui as applied to claim 8 above, and further in view of Nishi.

Katakura discloses (*claim 16*) said CPU transmits a permission signal to permit the driving of said driven elements to said driving section (see column 2 line 29-column 3 line 59). Fukui discloses correction data being stored in memory (see column 6 lines 21-27).

Katakura and Fukui do not disclose expressly (*claim 9*) wherein said first memory has control terminals for controlling the operation of said first memory and data input/output terminals, and said control terminals and said input/output terminals are connected to said strobe signal lines, (*claim 10*) wherein said first memory is subjected to an operation control for writing said correction values into said memory and reading out said correction data into said second memory by the strobe signals which are supplied from said strobe signal lines to said control terminals, (*claim 12*) wherein said first memory is an EEPROM, (*claim 14*) wherein said first memory has a data input terminal, a data output terminal, a selection terminal, and a clock terminal, and each of said strobe signal lines is connected to a respective one of the terminals, (*claim 15*) wherein the strobe signal lines other than the strobe signal lines which are link-driven are connected to said selection terminal and said clock terminal of said first memory, and (*claim 16*) wherein said first memory further has a write inhibition terminal and when the driving of said driven elements is permitted by said permission signal, the writing operation to said memory is inhibited.

Nishi discloses (*claim 9*) wherein said first memory has control terminals for controlling the operation of said first memory and data input/output terminals, and said control terminals and said input/output terminals are connected to said strobe signal

lines (see column 3 lines 11-16), (*claim 10*) wherein said first memory is subjected to an operation control for writing said correction values into said memory and reading out said correction data into said second memory by the strobe signals which are supplied from said strobe signal lines to said control terminals (see column 3 lines 3-10 and 51-59 and column 4 lines 2-7), (*claim 12*) wherein said first memory is an EEPROM (see column 2 lines 56-59 and column 3 lines 51-53), (*claim 14*) wherein said first memory has a data input terminal, a data output terminal, a selection terminal, and a clock terminal, and each of said strobe signal lines is connected to a respective one of the terminals (see column 3 lines 11-16 and line 51-column 4 line 16 and Fig. 1), (*claim 15*) wherein the strobe signal lines other than the strobe signal lines which are link-driven are connected to said selection terminal and said clock terminal of said first memory (see Fig. 1), and (*claim 16*) wherein said first memory further has a write inhibition terminal (see column 3 lines 44-45), and when the driving of said driven elements is permitted by said permission signal, the writing operation to said memory is inhibited (see column 3 lines 35-50, reference teaches situation in which a write inhibit mode is executed).

Katakura, Fukui, & Nishi are combinable because they are from the same problem solving area, memory storage and manipulation to execute desired functions.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the EEPROM and terminals, especially the write inhibit terminal, of Nishi with the print system of Katakura and Fukui.

The suggestion/motivation for doing so would have been to provide a memory, EEPROM, which can be more easily written to or read from, because EEPROM can be erased by exposing to an electrical charge but retains contents when power is off, and a write inhibit terminal to inhibit writing to the memory while reading is taken place so as not to disrupt the current process or destroy data.

Therefore, it would have been obvious to combine Nishi with Katakura and Fukui to obtain the invention as specified in claims 9, 10, 12, and 14-16.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura and Fukui as applied to claim 1 above, and further in view of Negishi.

Katakura and Fukui do not disclose expressly wherein said driven elements are thermal elements.

Negishi discloses wherein said driven elements are thermal elements (see column 4 lines 53-55, column 6 lines 10-15 and line 66-column 7 line 5).

Katakura, Fukui, & Negishi are combinable because they are from the same field of endeavor, printing devices containing a plurality of driven elements.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the thermal print head and corresponding thermal elements of Negishi with the print system of Katakura and Fukui.

The suggestion/motivation for doing so would have been to use heat to transfer an image to paper instead of light.

Therefore, it would have been obvious to combine Negishi with Katakura to obtain the invention as specified in claim 7.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark R. Milia whose telephone number is (571) 272-7408. The examiner can normally be reached M-F 8:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached at (571) 272-7402. The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark R. Milia
Examiner
Art Unit 2622

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